

Resumé of Key Personnel:

OFER SNEH – RESUME

PROFESSIONAL EXPERIENCE

SUNDEW TECHNOLOGIES, LLC - Broomfield, CO

President, Director of Technology

6/01-present

Founder of Sundew Technologies. Management Committee member and Officer. Responsibilities include setting and executing guidelines, priorities and road mapping of the company's technology, product development, prototyping, engineering and manufacturing, intellectual property, customer and vendor relations, research collaboration programs.

GENUS, INC. - Sunnyvale, CA

Vice President, Advanced Corporate Technology

3/01-5/31/01

Vice President, General Manager – ALD Products

7/00-3/01

Program Manager – Ultrathin Films

11/98-7/00

Responsibilities: ALD technology development and productization. ALD corporate strategy and customer support. ALD intellectual property. ALD 300 mm. ALD Applications.

Accomplishments Highlights:

- Initiated, invented, patented and implemented major technological equipment and process breakthrough ideas that enabled fast track realization of beta-ALD equipment from breadboard to market in less than a year.
- Established and built Genus's ALD program from scratch, including recruiting and training of technical staff.
- Shipped first-ever ALD systems to semiconductor fab development lines of major semiconductor manufacturers. These ALD systems are now at beta phase at multiple major semiconductor manufacturers' lines. Shipped first-ever ALD systems to the magnetic data storage industry. These ALD systems have entered production phase at Read-Rite Corp. on Oct. 2001, marking the first time for ALD equipment in mass production of mainstream commodities.
- Invented and patented a variety of process integration solutions involving ALD of critical ultrathin high-K dielectric and nitrides.
- Built up capabilities for ALD application lab and technology marketing.
- Defined ALD hardware control and software architecture.

AT&T/LUCENT TECHNOLOGIES – BELL LABS - Breinigsville, PA

Solid State Technology Center/ OEC

Member of Technical Staff

7/95-10/98

Responsibilities: Applied ALD, PVD and CVD techniques for a variety of research and development projects covering microelectronics and optoelectronics device applications.

Accomplishment Highlights:

- Developed and patented thin film processing techniques that achieved industry landmark device reliability.

- Invented and developed processes and special thin-film nitride materials with tunable wide range of electrical properties for device applications.
- Invented and developed techniques for thick electrodes fabrication with exceptionally regular structures and high aspect ratios.

UNIVERSITY OF COLORADO, BOULDER, CO - Dept. of Chemistry and Biochemistry

Postdoctoral Research Fellow

7/91-6/95

Supervisor: Prof. Steven M. George

Co-invented catalytic ALD. Investigated and resolved ALD mechanisms. First to demonstrate ALD interfacing. Discovered the root mechanism for ALD deposition per cycle. Studied surface phenomena associated with ALD and CVD. Investigated surface diffusion.

EDUCATION

Tel-Aviv University

Tel-Aviv, Israel, 1991

Ph.D. Chemistry-Chemical Physics

Tel-Aviv University

Tel-Aviv, Israel, 1986

M.Sc. Chemistry-Chemical Physics, Magna-cum Laude

Tel-Aviv University

Tel-Aviv, Israel, 1984

B.Sc. Chemistry

PATENTS:

- 23 patents granted, most of them relate to ALD: US05949944, US06007685, US06037268, US06090442, US06189238, US06200893, US06305314, US6451119, US6451695, US6475910, US6503330, US6540838, US6551399, US6602784, US6617173, US6639401, US6638859, US6638862, 6,863,021, 6,897,119, 6,897,508, 6,911,092, 7,250,083.
- Additional 32 patents pending.

PUBLICATIONS:

Over 30 publications in peer-reviewed scientific and technical journals.

For example (ALD related):

1. Ofar Sneh, Robert B. Clark-Phelps, Ana R. Londergan, Jereld L. Winkler and Thomas E. Seidel, *Thin Film Atomic Layer Deposition Equipment for Semiconductor Processing*, Thin Solid Films, 402/1-2 (2002) 248.
2. Jason W. Klaus, Ofar Sneh and Steven M. George, Surf. Rev. and Lett. 6 (1999) 435.
3. Jason W. Klaus, Ofar Sneh and Steven M. George, *Growth of SiO₂ at Room Temperature with the Use of Catalyzed Sequential Half-Reactions*, Science, 278 (1997) 1934.
4. Ofar Sneh, Michael L. Wise, Andrew W. Ott, Lynne A. Okada and Steven M. George, *Atomic Layer Growth of SiO₂ on Si(100) using SiCl₄ and H₂O in a binary Reaction Sequence*, Surf. Sci. 334 (1995) 135.
5. Steven M. George, Ofar Sneh, Ann C. Dillon, Michael L. Wise, Andrew W. Ott, Lynne A. Okada and J. Douglas Way, *Atomic Layer Controlled Deposition of SiO₂ and Al₂O₃ using ABAB... Binary Reaction Sequence Chemistry*, Appl. Surf. Sci., 82/83 (1994) 460.

Invited paper – Solid State Technology: Ofar Sneh, *Strategies for High Productivity ALD*, FEOL, Solid State Technology, Nov 2003, p. 22.
